CLAIMS:

1. A fuel cell comprising:

a fuel cell main unit which includes a fuel electrode and an oxidant electrode, and generates electric power based on supplying of organic liquid fuel to said fuel electrode and oxidant to said oxidant electrode; and

a vibration generating unit which generates vibration to vibrate said fuel electrode such that carbon dioxide generated at said fuel electrode is removed.

2. The fuel cell according to claim 1, further comprising:

a control unit which controls an operation of said vibration generating unit based on an output of said fuel cell main unit.

3. The fuel cell according to claim 1 or 2, further comprising:

a power applying unit which outputs alternating electric power to said vibration generating unit, wherein said vibration generating unit is driven by said alternating electric power.

4. The fuel cell according to any of claims 1 to 3, wherein said vibration generating unit is driven by a part of an output of said fuel cell main unit.

5. The fuel cell according to any of claims 1 to 4, wherein said vibration generating unit includes a piezoelectric vibrator which generates said vibration.

6. The fuel cell according to any of claims 1 to 5, wherein said vibration generating unit is arranged on said fuel cell main unit.

7. The fuel cell according to any of claims 1 to 5, further comprising:

a holding substrate on which holds said fuel cell main unit and said vibration generating unit,

wherein said holding substrate transmits said vibration to said fuel cell main unit.

8. The fuel cell according to any of claims 1 to 7, wherein said fuel cell main unit includes a porous current collector that is coated by hydrophilic coating material.

9. The fuel cell according to any of claims 1 to 7, wherein said fuel cell main unit includes a porous current collector that is coated by hydrophobic coating material.

10. The fuel cell according to any of claims 1 to 7, wherein said fuel electrode includes:

a current collector, and

a fuel electrode catalyst layer of which one side

is connected to said current collector and another side is connect to a polymer electrolyte membrane,

said current collector has holes which penetrate said current collector, diameters of said holes at a side of said fuel electrode catalyst layer are smaller than those at an opposite side.

11. A potable information device comprising:

a body; and

a fuel cell which is held on said body,

wherein said fuel cell comprising:

a fuel cell main unit which is arranged in said body, includes a fuel electrode and an oxidant electrode, and generates electric power based on supplying of organic liquid fuel to said fuel electrode and oxidant to said oxidant electrode, and

a vibration generating unit which is arranged in said body and generates vibration to vibrate said fuel electrode such that carbon dioxide generated at said fuel electrode is removed.

12. The potable information device according to claim 11, wherein said fuel cell further comprises:

a control unit which controls an operation of said vibration generating unit based on an output of said fuel cell main unit.

13. The potable information device according to claim 11 or 12, wherein said fuel cell further comprises:

a power applying unit which outputs alternating electric power to said vibration generating unit, wherein said vibration generating unit is driven by said alternating electric power.

14. The potable information device according to any of claims 11 to 13, wherein said vibration generating unit is driven by a part of an output of said fuel cell main unit.

15. The potable information device according to any of claims 11 to 14, wherein said vibration generating unit includes a piezoelectric vibrator which generates said vibration.

16. The potable information device according to any of claims 11 to 15, wherein said vibration generating unit is arranged on said fuel cell main unit.

17. The potable information device according to any of claims 11 to 15, wherein said fuel cell further comprises:

a holding substrate on which holds said fuel cell main unit and said vibration generating unit, and

said holding substrate transmits said vibration to said fuel cell main unit.

18. The potable information device according to any of claims 11 to 17, wherein said fuel cell main unit includes a porous current collector that is coated by hydrophilic coating material.

19. The potable information device according to any of claims 11 to 17, wherein said fuel cell main unit includes a porous current collector that is coated by hydrophobic coating material.

20. The potable information device according to any of claims 11 to 19, wherein said fuel electrode includes:

a current collector, and

a fuel electrode catalyst layer of which one side is connected to said current collector and another side is connect to a polymer electrolyte membrane,

said current collector has holes which penetrate said current collector, diameters of said holes at a side of said fuel electrode catalyst layer are smaller than those at an opposite side.

21. The potable information device according to any of claims 11 to 20, wherein said body includes:

an outer body,

an inner body which is contained in said outer body, and

a vibration damping material which connects said outer body and said inner body,

said fuel cell is held on said inner body.

22. The potable information device according to claim 21, further comprising:

an information notifying unit which is arranged on said inner body, transmits said vibration to said outer body and notifies information to a user by vibrating said outer body based on said vibration.

23. The potable information device according to any of claims 11 to 21, wherein said vibration generating unit is combined with a information notifying unit which transmits said vibration to said body and notifies information to a user by vibrating said body based on said vibration.

24. The potable information device according to claim 21 or 22, wherein said vibration damping material includes butyl rubber.

25. A cellular phone comprising:

a body; and

a fuel cell which is held on said body,

wherein said fuel cell comprising:

a fuel cell main unit which is arranged in said body,

includes a fuel electrode and an oxidant electrode, and generates electric power based on supplying of organic liquid fuel to said fuel electrode and oxidant to said oxidant electrode, and

a vibration generating unit which is arranged in said body and generates vibration to vibrate said fuel electrode such that carbon dioxide generated at said fuel electrode is removed,

said vibration generating unit is combined with a information notifying unit which transmits said vibration to said body and notifies information to a user by vibrating said body based on said vibration.

26. An operation method of a fuel cell, comprising:

(a) generating electric power by supplying organic liquid fuel to a fuel electrode and oxidant to an oxidant electrode of said fuel cell; and

(b) vibrating said fuel electrode such that carbon dioxide generated at said fuel electrode is removed.

27. The operation method of a fuel cell according to claim 26, wherein said vibration is generated by a piezoelectric vibrator to which alternating current is supplied.

28. The operation method of a fuel cell according to claim 26 or 27, wherein said vibration is generated by using

a part of output current of said fuel cell.

29. The operation method of a fuel cell according to any of claims 26 to 28 wherein said step (b) comprises:

(b1) vibrating said fuel electrode when an output of said fuel cell is lower than a threshold value.